Kentucky Horticulture Skill Standards

Every Scholar Needs A Skill

Kentucky Skill Standards, Assessment, and Certification System
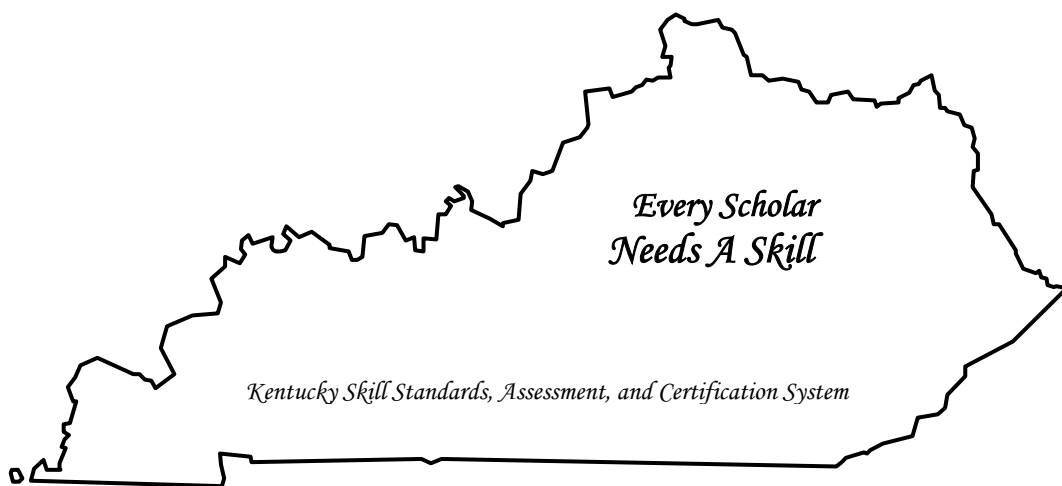
Established by the Horticulture Skill Standards Task Force

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INTRODUCTION
Horticulture

The Kentucky Education Reform Act identified fifty-seven Academic Expectations that every student should know and be able to do. Once these academic expectations were identified, it became the responsibility of educators to determine when a student had reached these expectations. The Commonwealth Accountability Testing Service is used to measure a student's academic ability.

It is also the responsibility of educators to provide the workforce with workers that have the appropriate introductory job skills to make productive employees. Skill Standards Assessments are the instruments used to identify the knowledge and skill a worker needs in order to be a productive employee. Education and business and industry representatives developed these standards and assessments collectively.

The Agriculture Industry is not highly unionized and the industry labor force is somewhat fragmented as a whole. Consequently, skill standards for the Horticulture segment of the Agriculture Industry have not been developed on a national level. To accomplish this task at the state level, a group of recognized individuals from the Horticulture Industry were brought together to develop a set of skill standards that would address the academic, employability and occupational needs of employees in the Horticulture Industry.

The Horticulture Industry has several different segments -- greenhouse, landscape, nursery, turf, fruit and vegetable production and floriculture. Each represents a significant market share of the Horticulture Industry. The standards will address the common core areas that are shared by two or more of these segments. Once student understand these core areas, they will be able to successfully branch out into any segment of the industry and have a foundation of knowledge that will support the specialization needed to succeed.

Preparation for Tomorrow's Workforce

Carl D. Perkins Vocational and Technology Act of 1990 mandates broad vocational, rather than job-specific, training and an integration of academic and vocational content. The Act requires programs to provide students with a general understanding of "all aspects of an industry." More recently, the first of the five Indicators of Performance in the new Perkins legislation addresses "student attainment of challenging state-established academic and vocational/technical skill proficiencies."

Skill Standards are the performance specifications that identify the knowledge, skills and abilities, an individual needs to succeed in the workplace. Identifying the necessary skills is critical to preparing students for entry into employment. Skill standards provide a common vocabulary to enhance communication between:

•Employers and Job Seekers—to specify the knowledge, skills, aptitudes and attitudes required for recruitment, hiring, and retention in a company or within an industry.

•Employers and Schools or Job Training programs--to encourage the alignment of school curricula with industry requirements, to update educational objectives as workplace demands change, and to ensure a better return on public and private education and training investments.

•Employers or Job Seekers and Schools or Job Training Programs--to help employees and job seekers make decisions about their own education and training needs in a changing market place.

In the most successful workplaces, the only constant is change. Jobs that were previously simple now require high performance work processes and enhanced skills in order to compete globally. Skill standards reflect these changing workplace realities and are keys for helping applicants and employers enjoy greater career opportunities and achieve higher standards of living and economic security.

Kentucky's Certification System

Skill standards are important today to educators, employers, and students who desire jobs after graduation from high school. The Division of Career and Technical Education, in conjunction with employers from the horticulture industry, are working together to develop a system to certify that students have attained the necessary skills for employment. The first step in developing this system was the development or adoption of skill standards that describe the necessary occupational, academic and employability skills needed to enter the industry. Mastery of these standards signals to employers that the student is employable and ready to begin employment with the industry.

In order to ensure that students in fact attained the necessary skills described in the standards document, students take an assessment based on the standards. The assessment system includes two components:

> Multiple-choice questions specifically testing the mastery of the Skill
> Standards; and

> Problem-based scenarios to test the students problem-solving and decision-
> making skills related to their occupational standards.

Students who successfully complete each of the components at a specified percentage receive an industry-recognized certificate to provide to employers communicating mastery of the standards.

Program Sequence for Horticulture Skill Standards

Students should complete a coherent sequence of courses from the secondary Agriculture Education curriculum. The sequences are developed by Career Major and include Agribusiness, Horticulture, Production, Agricultural Mechanics/Engineering, Forestry/Resource Management and Agriculture Processing/Distribution. Courses under each major must also be in the Kentucky Program of Studies.

Three credits are required from the following recommended courses for a student to take the Horticulture assessment:

Plant and Land Science	Greenhouse Technology
Landscape/Turf Management	Nursery/Orchard Technology
Floriculture/Floral Design	Advanced Plant Science

Course Descriptions:

Plant and Land Science develops basic scientific knowledge and skills pertaining to management of the land and its effects on food and fiber production, the environment, and the quality of life. The relationship of land to plant growth will be emphasized. Plant composition, reproduction, growth, and current biotechnological advances will be included.

Greenhouse Technology provides instruction in greenhouse structures and greenhouse environment regulations.   Plant growth and development and propagation are included as well as production and maintenance of bedding and container produced plants. Fundamental principles of vegetable production and commercial production of vegetable crops may be included.

Landscaping and Turf Management is a combined curriculum. The material includes identification of landscape plants and their characteristics, site evaluation, site design, calculation of materials needed, costs for bidding, and installing landscape plans. Landscape plant maintenance will also be presented. Selection, culture and management of turf species used for lawns, golf courses, athletic fields and erosion control may also be included.

Nursery and Orchard Technology will provide instruction in production practices for container and field-grown nursery stock; identification, function, growing requirements, hardiness, problems and methods of different landscape plant materials; propagating and growing evergreens/deciduous plants; and the operation of garden centers and nurseries. Principles of home and commercial fruit production may also be included.

Floriculture and Floral Design provides instruction to develop floral design techniques using silk, dried, and fresh flowers. Students will learn operation and management techniques of a florist business as well as identification, production and cultural maintenance practices of plants used in floral design and interior landscaping.

Advanced Plant Science is a freshman-level college course, which introduces students to the world of plants. The course is a survey of botany, agronomy, horticulture, soils, forestry, and other areas of plant science. Opportunity is provided for students to earn three (3) hours of introductory college credit.

Leadership development and employability skills are supplemented in all of these courses through the career and technical student organization, **FFA** and through various projects and activities.

This document identifies the skill standards developed to be assessed in the certification process. Current curriculum in Horticulture offered in your school should be aligned to these standards. A crosswalk shows the relationship between the horticulture skill standards, academic expectations, and the SCANS (Secretary's Commission on Achieving Necessary Skills). SCANS was developed by the U.S. Department of Labor in 1991 with employers from all over the nation. They describe the necessary foundation skills and competencies necessary to succeed in the workplace.

For more information about the skill standards, crosswalks or certification system for Horticulture, please contact:

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	OCCUPATIONAL STANDARDS
OA	**Determine Appropriate Marketing and Sales Strategies**
OA001	Develop a marketing plan.
OA002	Address customer questions about given products and services.
OA003	Demonstrate sales process.
OB	**Analyze and Enhance Soil and Growing**
OB001	Collect soil samples.
OB002	Analyze soil samples.
OB003	Interpret soil samples.
OB004	Adjust Fertility and pH from analysis.
OB005	Analyze site according to soil type, slope and drainage.
OB006	Demonstrate the use of different soil mixes and growing media.
OC	**Distinguish and select plant production method**
OC001	Propagate specific plant materials.
OC002	Label propagation material.
OC003	Watering requirements of specific plants.
OC004	Fertility requirements of specific plants.
OD	**Develop and implement production and management schedule**
OD001	Determine production cost for given crop.
OD002	Regulate environmental factors for plant growth.
OD003	Schedule production and harvest for given crop.
OD004	Distinguish environmental issues (surface or ground water, government regulations, water testing, EPA).
OD005	Interpret weather patterns and data.
OE	**Monitor and control pests**
OE001	Determine proper pesticide for given symptoms.
OE002	Demonstrate safe handling and storage of pesticides.
OE003	Calculate, mix and apply pesticides.
OE004	Monitor for plant damage.
OF	**Perform routine service and maintenance of tools and equipment.**
OF001	Clean and maintain hand tools.
OF002	Service selected equipment according to manufacturers recommendations.
OG	**Provide safe workplace environment**
OG001	Follow theft and security procedures.
OG002	Identify emergency, safety and health rules/procedures.
OG003	Identify hazardous substances in the workplace.
OG004	Identify immediate and real costs of an accident.
OG005	Identify methods of preventing accidents in the workplace.
OG006	Assume responsibility for the personal safety of self and others.
OGOO7	Comply with established safety practices.
OGOO8	Identify fire exits and fire-fighting equipment.
OG009	Maintain a clean and safe work facility.
OG010	Report unsafe practices to appropriate personnel.
OH	**Utilize industry resources**
OH001	Apply electronic technology (bar code, e-mail).
OH002	Distinguish roles and responsibilities of government agencies.
OH003	Keep up-to-date through industry associations and trade journals.
OH004	Interpret the impact of the horticultural industry on local, state, national, and international economy.

	EMPLOYABILITY STANDARDS
EA	**Exhibit Workplace Skills**
EA001	Demonstrate consistently punctual arrival.
EA002	Document regular attendance.
EA003	Demonstrate enthusiasm and confidence about work and learning new tasks.
EA004	Demonstrate appropriate dress and hygiene for successful employment.
EA005	Demonstrate the ability to act in a polite and respectful way towards co-workers.
EA006	Demonstrate the ability to complete tasks on time and accurately.
EA007	Demonstrate the ability to make career decisions.
EA008	Prepare a resume and letter of application or interest.
EA009	Complete an application for employment.
EA010	Participate in an employment interview.
EA011	Follow directions and procedures.
EA012	Accept constructive criticism.
EA013	Work with minimal supervision.
EB	**Understand Workforce Issues.**
EB001	Recognize the difference between a team environment workplace and a conventional workplace.
EB002	Identify the characteristics of a diverse workforce.
EB003	Identify good ethical characteristics and behaviors.
EB004	Differentiate between good and poor business ethics.
EB005	Match employee responsibilities to employer expectations.
EB006	Define discrimination, harassment and equity.
EB007	Demonstrate non-discriminatory behavior.
EB008	Maintain confidentiality and sensitivity of company information.
EC	**Perform Business Planning and Operations Procedures**
EC001	Plan and manage work schedules.
EC002	Maintain receipts and disbursements records.
EC003	Maintain inventory records.
EC004	Maintain computer records.
EC005	Identify possible actions that may lead to customer dissatisfaction.
EC006	Identify the ways that the level of customer satisfaction may affect company success.
EC007	Explain the importance of a business reputation.
EC008	Identify possible actions that may be used to correct customer dissatisfaction.
EC009	Explain the effect of quality on profit.
EC010	Identify the effects of continuous quality improvement.
ED	**Demonstrate Effective Communication and Teamwork Skills.**
ED001	Organize materials with a logical flow.
ED002	Interpret and clarify directions prepared by others.
ED003	Communicate with customers.
ED004	Write steps of an occupational process using sentences and statements as appropriate.
ED005	Identify appropriate communication methods.
ED006	Identify components of group dynamics.
EE	**Demonstrate Problem Solving Techniques.**
EE001	Apply a system of problem solving.

	ACADEMIC STANDARDS
AA	**Utilize Effective Workplace Communication Skills**
AA001	Read and process information and follow instructions.
AA002	Read material and describe concepts.
AA003	Use correct terminology.
AA004	Use correct spelling, grammar and punctuation.
AA005	Write with accuracy, brevity, and clarity.
AA006	Demonstrate knowledge of conflict resolution techniques.
AA007	Possess basic computer keyboarding skills.
AA008	Demonstrate understanding of basic of interpersonal communication (listening, written, oral, etc.).
AA009	Implement new process steps given oral instructions.
AA010	Demonstrate the characteristics of a team player.
AA011	Contrast the roles of a team with the role of an individual.
AA012	Perform techniques used as a team leader.
AA013	Demonstrate productive relationships within the work group.
AA014	Organize and deliver a persuasive oral presentation.
AA015	Demonstrate good speaking and presentation characteristics.
AA016	Demonstrate basic leadership skills.
AA017	Identify the organizational need for profit.
AA018	Demonstrate use of an industry-accepted word processing software package.
AB	**Apply Math and Measurement Skills**
AB001	Add, subtract, multiply, and divide four digit numbers with, and without the use of a calculator.
AB002	Apply basic math functions to solve problems.
AB003	Convert between US and metric measurement systems.
AB004	Convert fractional measurement to decimal measurement.
AB005	Compute within measurement systems.
AB006	Document results of measurement activities and calculations
AB007	Calculate with percents, rate, ratio, and proportion with the use of a calculator.
AB008	Make reasonable estimates.
AB009	Compute calculated measurements.
AC	**Apply Basic Science Concepts and Skills**
AC001	Understand scientific plant classification.
AC002	Compare the anatomical parts and distinguishing characteristics of plants.
AC003	Understand the reproductive processes of plants.
AC004	Investigate sexual and asexual reproduction of plants including tissue culture.
AC005	Analyze the process of plant growth and development.
AC006	Be aware of biotechnology and its uses in horticulture production.
AC007	Explain the use of applied genetics in plants.

Horticulture Crosswalk of Skill Standards to Academic Expectations and SCANS

Skill Standards		Kentucky Academic Expectations		SCANS	
	OCCUPATIONAL STANDARDS				
OA	**Determine Appropriate Marketing and Sales Strategies**				
OA001	Develop a marketing plan	1.1 1.11 1.16 2.13 2.22 2.18 4.6 5.2 6.3	Accessing Sources of Information Writing Using Electronic Technology Data Convey a Point of View Structure and Function of Economic System Open Mind to Alternative Perspectives Creative Thinking Expanding Existing Knowledge	C5 C7 C11 F1 F2 F5 F7 F12	Acquires and Evaluates Information Interprets and Communicates Information Serves Clients/Customers Reading Writing Listening Creative Thinking Reasoning
OA002	Address customer questions about given products and services	1.12 2.1 2.6 4.1 4.5 5.1	Speaking Nature of Science Activity Change Over Time Interpersonal Skills Multicultural Sensitivity Critical Thinking	C7 C11 F5 F6 F9 F12 F15 F17	Interprets and Communicates Information Serves Clients/Customers Listening Speaking Problem Solving Reasoning Social Integrity/Honesty
OA003	Demonstrate sales process	1.12 2.18 4.1 6.1 6.2 6.3	Speaking Structure and Function of Economic System Interpersonal Skills Applying Multiple Perspectives Developing New Knowledge Expanding Existing Knowledge	C11 F1 F2 F5 F6 F9 F12	Serves Clients/Customers Reading Writing Listening Speaking Problem Solving Reasoning
OB	**Analyze and Enhance Soil and Growing**				
OB001	Collect soil samples	2.1	Nature of Science Activity	C18	Selects Technology
OB002	Analyze soil samples	1.10 2.2 2.7 5.1	Classifying Patterns Number Critical Thinking	C5 C19 F12	Acquires and Evaluates Information Applies Technology to a Task Reasoning

Horticulture Crosswalk of Skill Standards to Academic Expectations and SCANS

	Skill Standards		Kentucky Academic Expectations		SCANS
OB003	Interpret soil samples	1.3 1.11 1.12 1.16 2.3 2.7 2.8 5.3	Observing Writing Speaking Using Electronic Technology Systems and Interactions Number Mathematical Procedures Conceptualizing	C7 C19 F2 F3 F12	Interprets and Communicates Information Applies Technology to a Task Writing Speaking Reasoning
OB004	Adjust Fertility and pH from analysis	2.1	Nature of Science Activity	C7 F12	Interprets and Communicates Information Reasoning
OB005	Analyze site according to soil type, slope and drainage	2.1 2.2 2.7 2.8 2.9 2.10 5.1 5.5	Nature of Science Activity Patterns Number Mathematical Procedures Space and Dimensionality Measurement Critical Thinking Problem Solving	C5 C15 C18 F12	Acquires and Evaluates Information Understands Systems Selects Technology Reasoning
OB006	Demonstrate the use of different soil mixes and growing media	1.3 1.12 2.1 2.3 5.1 5.4	Observing Speaking Nature of Science Activity Systems and Interactions Critical Thinking Decision Making	C7 C19 F6 F11 F12	Interprets and Communicates Information Applies Technology to a Task Speaking Knows How to Learn Reasoning
OC	**Distinguish and select plant production method**				
OC001	Propagate specific plant materials	1.1 1.3 1.10 2.1 2.2 2.6 2.10 2.13 5.4	Accessing Sources of Information Observing Classifying Nature of Science Activity Patterns Change Over Time Measurement Data Decision Making	C5 C15 C16 F8 F12 F13 F16	Acquires and Evaluates Information Understands Systems Monitors and Corrects Performance Decision Making Reasoning Responsibility Self-Management
OC002	Label propagation material	1.11	Accessing Sources of Information	F1 F2	Reading Writing
OC003	Watering requirements of specific plants	2.1 2.6 2.37 5.4	Nature of Science Activity Change Over Time Employability Skills Decision Making	C16 F8 F12 F13	Monitors and Corrects Performance Decision Making Reasoning Responsibility

Horticulture Crosswalk of Skill Standards to Academic Expectations and SCANS

	Skill Standards		Kentucky Academic Expectations		SCANS
OC004	Fertility requirements of specific plants	2.1 2.6 2.7 2.8 2.10 2.12 2.13 2.37	Nature of Science Activity Change Over Time Number Mathematical Procedures Measurement Mathematical Structures Data Employability Skills	C6 C16	Organize and Maintains Information Monitors and Corrects Performance
OD	**Develop and implement production and management schedule**				
OD001	Determine production cost for given crop	1.1 1.2 1.3 1.5 1.6 1.7 1.8 1.9 1.16 2.1 2.2 2.3 2.6 2.7 2.8 2.9 2.10 2.12 2.18 2.30 5.1 5.4 6.2	Accessing Sources of Information Reading Observing Quantifying Computing Visualizing Measuring Mathematical Reasoning Using Electronic Technology Nature of Science Activity Patterns Systems and Interactions Change Over Time Number Mathematical Procedures Space and Dimensionality Measurement Mathematical Structures Structure and Function of Economic System Physical Wellness Critical Thinking Decision Making Developing New Knowledge	C5 F3 F4 F8 F12	Acquires and Evaluates Information Arithmetic Mathematics Decision Making Reasoning
OD002	Regulate environmental factors for plant growth	1.3 1.10 2.1 2.2	Observing Classifying Nature of Science Activity Patterns	C6 C16 C18 C19 F8 F12 F13 F16	Organizes and Maintains Information Monitors and Corrects Performance Selects Technology Applies Technology to a Task Decision Making Reasoning Responsibility Self-Management

Horticulture Crosswalk of Skill Standards to Academic Expectations and SCANS

	Skill Standards		Kentucky Academic Expectations		SCANS
OD003	Schedule production and harvest for given crop	1.3 1.10 2.1 2.2 2.9 2.10 2.11 2.13	Observing Classifying Nature of Science Activity Patterns Space and Dimensionality Measurement Change Data	C6 C15 F12	Organizes and Maintains Information Understands Systems Reasoning
OD004	Distinguish environmental issues (surface or ground water, government regulations, water testing, EPA)	1.1 1.2 1.3 1.4 1.10 2.1 2.2 2.7 2.10 2.15 2.20 5.1	Accessing Sources of Information Reading Observing Listening Classifying Nature of Science Activity Patterns Number Measurement Structure and Function of Political System Historical Perspective Critical Thinking	C5 C6 C15 F1 F5 F11 F12	Acquires and Evaluates Information Organizes and Maintains Information Understands Systems Reading Listening Knows How to Learn Reasoning
OD005	Interpret weather patterns and data	1.1 1.2 1.3 1.4 2.1 2.4 2.8 2.10 5.1 5.3 5.5	Accessing Sources of Information Reading Observing Listening Nature of Science Activity Models and Scale Mathematical Procedures Measurement Critical Thinking Conceptualizing Problem Solving	C5 F12	Acquires and Evaluates Information Reasoning

Horticulture Crosswalk of Skill Standards to Academic Expectations and SCANS

	Skill Standards		Kentucky Academic Expectations		SCANS
OE	**Monitor and control pests**				
OE001	Determine proper pesticide for given symptoms	1.1 1.2 1.3 2.1 2.2 2.7 2.8 2.9 2.10 2.13 2.30 5.1 5.4 5.5 6.1	Accessing Sources of Information Reading Observing Nature of Science Activity Patterns Number Mathematical Procedures Space and Dimensionality Measurement Data Physical Wellness Critical Thinking Decision Making Problem Solving Applying Multiple Perspectives	C5 C15 F1 F8 F13	Acquires and Evaluates Information Understands Systems Reading Decision Making Responsibility
OE002	Demonstrate safe handling and storage of pesticides	1.1 1.2 1.3 2.1 2.7 2.8 2.10 2.32 4.4 5.1 5.4 6.1	Accessing Sources of Information Reading Observing Nature of Science Activity Number Mathematical Procedures Measurement Mental and Emotional Wellness Rights and Responsibilities Critical Thinking Decision Making Applying Multiple Perspectives	C5 C7 C9 C10 C15 C19 F1 F5 F8 F9 F12 F13 F17	Acquires and Evaluates Information Interprets and Communicates Information Participates Teaches Others Understands Systems Applies Technology to a Task Reading Listening Decision Making Problem Solving Reasoning Responsibility Integrity/ Honesty
OE003	Calculate, mix and apply pesticides	1.1 2.1 2.3 2.7 2.8 2.9 2.10 2.32 4.4 5.1 5.4 6.1	Accessing Sources of Information Nature of Science Activity Number Systems and Interactions Number Mathematical Procedures Space and Dimensionality Measurement Mental and Emotional Wellness Rights and responsibilities Critical Thinking Decision Making Appling Multiple Perspectives	C3 C5 C7 C15 C19 F1 F5 F8 F13 F17	Allocates Materials and Facility Resources Acquires and Evaluates Information Interprets and Communicates Information Understands Systems Applies Technology to a Task Reading Listening Decision Making Responsibility Integrity/ Honesty

Horticulture Crosswalk of Skill Standards to Academic Expectations and SCANS

	Skill Standards		Kentucky Academic Expectations		SCANS
OE004	Monitor for plant damage	1.3 2.1 5.5	Observing Nature of Science Activity Problem Solving	C5 C15 C20 F8 F12 F13	Acquires and Evaluates Information Understands Systems Maintains and Troubleshoots Technology Decision Making Reasoning Responsibility
OF	**Perform routine service and maintenance of tools and equipment.**				
OF001	Clean and maintain hand tools	1.2 1.3 1.4 2.37	Reading Observing Listening Employability Skills	C16 C20 F1 F5 F12 F13	Monitors and Corrects Performance Maintains and Troubleshoots Technology Reading Listening Reasoning Responsibility
OF002	Service selected equipment according to manufacturers recommendations	1.2 2.8 2.37	Reading Mathematical Procedures Employability Skills	C16 C20 F1 F5 F8 F13	Monitors and Corrects Performance Maintains and Troubleshoots Technology Reading Listening Decision Making Responsibility
OG	**Provide safe workplace environment**				
OG001	Follow theft and security procedures	1.2 1.3 1.4 2.31 2.34 3.6 4.4 5.1 5.4	Reading Observing Listening Mental and Emotional Wellness Lifetime Physical Activities Ethical Values Rights and Responsibilities Critical Thinking Decision Making	C5 C9 C11 C12 F13 F16 F17	Acquires and Evaluates Information Participates Serves Clients/Customers Exercises Leadership Responsibility Self-Management Integrity/ Honesty
OG002	Identify emergency, safety and health rules/procedures	1.2 1.3 1.4 2.32 4.4 5.1 5.4	Reading Observing Listening Mental and Emotional Wellness Rights and Responsibilities Critical Thinking Decision Making	C5 C15 F12 F13 F16	Acquires and Evaluates Information Understands Systems Reasoning Responsibility Self-Management

Horticulture Crosswalk of Skill Standards to Academic Expectations and SCANS

	Skill Standards		Kentucky Academic Expectations		SCANS
OG003	Identify hazardous substances in the workplace	1.1 1.2 1.3 1.4 2.1 2.31	Decision Making Reading Observing Listening Nature of Science Activity Mental and Emotional Wellness	C7 C15 F2 F5 F6 F12 F13 F16	Interprets and Communicates Information Understands Systems Writing Listening Speaking Reasoning Responsibility Self-Management
OG004	Identify immediate and real costs of an accident.	1.2 1.3 1.4 2.7 2.8 2.10 5.1 5.4	Reading Observing Listening Number Mathematical Procedures Measurement Critical Thinking Decision Making	C5 C7 C15 F3 F4 F12	Acquires and Evaluates Information Interprets and Communicates Information Understands Systems Arithmetic Mathematics Reasoning
OG005	Identify methods of preventing accidents in the workplace.	1.2 1.3 1.4 4.4 5.1 5.5 6.1	Reading Observing Listening Rights and responsibilities Critical Thinking Problem Solving Applying Multiple Perspectives	C5 C7 C15 F2 F5 F6 F9 F12 F13 F16	Acquires and Evaluates Information Interprets and Communicates Information Understands Systems Writing Listening Speaking Problem Solving Reasoning Responsibility Self-Management
OG006	Assume responsibility for the personal safety of self and others.	2.31 2.37 3.5 3.6 4.1 4.2 4.3 4.4	Mental and Emotional Wellness Employability Skills Self-Control and Self-Discipline Ethical Values Interpersonal Skills Productive Team Skills Consistent, Responsive, Caring Behavior Rights and Responsibilities	C9 C11 C12 F5 F6 F9 F12 F13 F16 F17	Participates Serves Clients/Customers Exercises Leadership Listening Speaking Problem Solving Reasoning Responsibility Self-Management Integrity/Honesty

Horticulture Crosswalk of Skill Standards to Academic Expectations and SCANS

Skill Standards		Kentucky Academic Expectations		SCANS	
OGOO7	Comply with established safety practices	2.31 3.5 3.6 2.37	Mental and Emotional Wellness Self-Control and Self-Discipline Ethical Values Employability Skills	C7 C9 C11 C12 C16 C20 F1 F5 F6 F9 F12 F13 F16 F17	Interprets and Communicates Information Participates Serves Clients/Customers Exercises Leadership Monitors and Corrects Performance Maintains and Troubleshoots Technology Reading Listening Speaking Problem Solving Reasoning Responsibility Self-Management Integrity/ Honesty
OGOO8	Identify fire exits and fire-fighting equipment.	1.2 1.3 1.4	Reading Observing Listening	C7	Interprets and Communicates Information
OG009	Maintain a clean and safe work facility	2.29 2.31 2.37 3.2 3.6 4.1 4.2 4.3 4.4	Consumerism Mental and Emotional Wellness Employability Skills Healthy Lifestyle Ethical Values Interpersonal Skills Productive Team Skills Consistent, Responsive, Caring Behavior Rights and Responsibilities	C6 C9 C11 C12 C16 C20 F1 F5 F6 F9 F12 F13 F16 F17	Organizes and Maintains Information Participates Serves Clients/Customers Exercises Leadership Monitors and Corrects Performance Maintains and Troubleshoots Technology Reading Listening Speaking Problem Solving Reasoning Responsibility Self-Management Integrity/ Honesty
OG010	Report unsafe practices to appropriate personnel.	2.30 2.31 3.2 3.6 4.1 4.2 4.3 4.4	Consumerism Mental and Emotional Wellness Healthy Lifestyle Ethical Values Interpersonal Skills Productive Team Skills Consistent, Responsive, Caring Behavior Rights and Responsibilities	C7 C9 C11 C12 F13 F16 F17	Interprets and Communicates Information Participates Serves Clients/Customers Exercises Leadership Responsibility Self-Management Integrity/ Honesty
OH	**Utilize industry resources**				
OH001	Apply electronic technology (bar code, e-mail*)*	1.16 2.10	Using Electronic Technology Measurement	C8 C19	Uses Computers to Process Information Applies Technology to a Task

Horticulture Crosswalk of Skill Standards to Academic Expectations and SCANS

	Skill Standards		**Kentucky Academic Expectations**		**SCANS**
OH002	Distinguish roles and responsibilities of government agencies	1.1 1.2 1.3 1.4 2.15 5.1 5.3 6.1	Accessing Sources of Information Reading Observing Listening Structure and Function of Political System Critical Thinking Conceptualizing Applying Multiple Perspectives	C5 C15 F1 F5 F11	Acquires and Evaluates Information Understands Systems Reading Listening Knows How to Learn
OH003	Keep up-to-date through industry associations and trade journals	1.2 1.3 1.4 2.36 2.37 2.26 3.7 6.2	Reading Observing Listening Career Path Employability Skills Diversity Learn On One's Own Developing New Knowledge	C6 C11 C12 F11 F13 F16	Organizes and Maintains Information Serves Clients/Customers Exercises Leadership Knows How to Learn Responsibility Self-Management
OH004	Interpret the impact of the horticultural industry on local, state, national, and international economy.	1.1 1.11 1.12 2.18 5.1 6.1 6.2	Accessing Sources of Information Writing Speaking Structure and Function of Economic System Critical Thinking Applying Multiple Perspectives Developing New Knowledge	C5 C6 C15 F1 F2 F6 F11	Acquires and Evaluates Information Organizes and Maintains Information Understands Systems Reading Writing Speaking Knows How to Learn

Horticulture Crosswalk of Skill Standards to Academic Expectations and SCANS

Skill Standards		Kentucky Academic Expectations		SCANS	
	EMPLOYABILITY STANDARDS				
EA	**Exhibit Workplace Skills**				
EA001	Demonstrate consistently punctual arrival.	3.5 2.37	Self-Control and Self-Discipline Employability Skills	F13 F16 F17	Responsibility Self-Management Integrity/ Honesty
EA002	Document regular attendance.	3.5 2.37 2.38	Self-Control and Self-Discipline Employability Skills Post-Secondary Opportunity Search	C6 F13 F16 F17	Organizes and Maintains Information Responsibility Self-Management Integrity/ Honesty
EA003	Demonstrate enthusiasm and confidence about work and learning new tasks.	2.37 3.5 3.7 5.5	Employability Skills Self-Control and Self-Discipline Learn On One's Own Problem Solving	C9 C12 F5 F6 F11 F15 F16	Participates Exercises Leadership Listening Speaking Knows How to Learn Social Self-Management
EA004	Demonstrate appropriate dress and hygiene for successful employment.	2.30 2.32 2.37 3.5	Consumerism Mental and Emotional Wellness Employability Skills Self-Control and Self-Discipline	C6 F1 F5 F16	Organizes and Maintains Information Reading Listening Self-Management
EA005	Demonstrate the ability to act in a polite and respectful way towards co-workers.	2.26 2.37 3.5 4.1 4.3	Diversity Employability Skills Self-Control and Self-Discipline Interpersonal Skills Consistent, Responsive, Caring Behavior	F5 F6	Listening Speaking
EA006	Demonstrate the ability to complete tasks on time and accurately.	2.26 2.37 2.38 3.5 4.3	Diversity Employability Skills Resumes, Interviews and Advancement Self-Control and Self- Discipline Consistent, Responsive, Caring Behavior	C6 C9 C11 C16 F13 F16 F17	Organizes and Maintains Information Participates Serves Clients/Customers Monitors and Corrects Performance Responsibility Self-Management Integrity/ Honesty
EA007	Demonstrate the ability to make career decisions.	2.26 2.36 2.37 2.38 5.1	Diversity Career Path Employability Skills Resumes, Interviews and Advancement Critical Thinking	C5 F8 F11 F13 F14	Acquires and Evaluates Information Decision Making Knows How to Learn Responsibility Self-Esteem

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Skill Standards			Kentucky Academic Expectations		SCANS	
EA008	Prepare a resume and letter of application or interest.	2.38 1.11 1.16	Resumes, Interviews and Advancement Writing Using Electronic Technology		C8 C19 F1 F2 F11	Uses Computers to Process Information Applies Technology to a Task Reading Writing Knows How to Learn
EA009	Complete an application for employment.	2.38 1.11 1.16	Resumes, Interviews and Advancement Writing Using Electronic Technology		C7 C19 F1 F2	Interprets and Communicates Information Applies Technology to a Task Reading Writing
EA010	Participate in an employment interview.	1.12 2.38	Speaking Resumes, Interviews and Advancement		C7 C14 F5 F6 F12 F15 F16 F17	Interprets and Communicates Information Works with Cultural Diversity Listening Speaking Reasoning Social Self-Management Integrity/ Honesty
EA011	Follow directions and procedures.	1.2 1.3 1.4 2.26	Reading Observing Listening Diversity		C6 F12 F13	Organizes and Maintains Information Reasoning Responsibility
EA012	Accept constructive criticism.	2.26 4.1 4.4 4.6	Diversity Interpersonal Skills Rights and Responsibilities Open Mind to Alternative Perspectives		C6 C7 C9 C12 C16 F5 F6 F11 F13 F14 F16	Organizes and Maintains Information Interprets and Communicates Information Participates Exercises Leadership Monitors and Corrects Performance Listening Speaking Knows How to Learn Responsibility Self-Esteem Self-Management

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	Skill Standards		Kentucky Academic Expectations		SCANS
EA013	Work with minimal supervision.	2.26 3.3 3.4 3.5 3.7 4.4 5.4 6.1	Diversity Adaptable and Flexible Resourceful and Creative Self-Control and Self-Discipline Learn On One's Own Rights and Responsibilities Decision Making Applying Multiple Perspectives	C6 C7 C8 C9 C12 C16 C18 C19 F1 F2 F3 F4 F5 F7 F8 F9 F11 F12 F13 F16 F17	Organizes and Maintains Information Interprets and Communicates Information Uses Computers to Process Information Participates Exercises Leadership Monitors and Corrects Performance Selects Technology Applies Technology to a Task Reading Writing Arithmetic Mathematics Listening Creative Thinking Decision Making Problem Solving Knows How to Learn Reasoning Responsibility Self-Management Integrity/ Honesty
EB	**Understand Workforce Issues.**				
EB001	Recognize the difference between a team environment workplace and a conventional workplace.	1.2 1.3 1.4 4.1 4.2 4.5	Reading Observing Listening Interpersonal Skills Productive Team Skills Multicultural Sensitivity	C7 C9 C15	Interprets and Communicates Information Participates Understands Systems
EB002	Identify the characteristics of a diverse workforce.	2.26 2.27 4.5 4.6	Diversity Language Multicultural Sensitivity Open Mind to Alternative Perspectives	C7 C9 C14 F13 F15 F16 F17	Interprets and Communicates Information Participates Works with Cultural Diversity Responsibility Social Self-Management Integrity/ Honesty
EB003	Identify good ethical characteristics and behaviors.	2.29 2.32 3.6	Consumerism Community Health System Ethical Values	C7 C9 F13 F15 F16 F17	Interprets and Communicates Information Participates Responsibility Social Self-Management Integrity/ Honesty

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	Skill Standards		Kentucky Academic Expectations		SCANS
EB004	Differentiate between good and poor business ethics.	3.6 5.1 5.4	Ethical Values Critical Thinking Decision Making	C5 C6 C7 F17	Acquires and Evaluates Information Organizes and Maintains Information Interprets and Communicates Information Integrity/ Honesty
EB005	Match employee responsibilities to employer expectations.	3.3 4.1 4.4	Adaptable and Flexible Interpersonal Skills Rights and Responsibilities	C6 C7 C11 C16 F13 F17	Organizes and Maintains Information Interprets and Communicates Information Serves Clients/Customers Monitors and Corrects Performance Responsibility Integrity/ Honesty
EB006	Define discrimination, harassment and equity.	2.16 2.26 2.30 2.32 2.33 2.37 3.6	Structure and Function of Social System Cultural Diversity Consumerism Mental and Emotional Wellness Community Health System Employability Skills Ethical Values	C6 C7 C14 F5 F6 F11 F12 F16 F17	Organizes and Maintains Information Interprets and Communicates Information Works with Cultural Diversity Listening Speaking Knows How to Learn Reasoning Self-Management Integrity/ Honesty
EB007	Demonstrate non-discriminatory behavior.	3.5 4.3	Self-Control and Self-Discipline Consistent, Responsive, Caring Behavior	C7 F1 F5 F6 F13 F15 F16 F17	Interprets and Communicates Information Reading Listening Speaking Responsibility Social Self-Management Integrity/ Honesty
EB008	Maintain confidentiality and sensitivity of company information.	3.6 3.5 4.4	Ethical Values Self-Control and Self-Discipline Rights and Responsibilities	C6 C7 F13 F16 F17	Organizes and Maintains Information Interprets and Communicates Information Responsibility Self-Management Integrity/ Honesty

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	Skill Standards		Kentucky Academic Expectations		SCANS
EC	**Perform Business Planning and Operations Procedures**				
EC001	Plan and manage work schedules.	1.10 1.11 2.7 2.8 2.10 4.2 5.1 5.4 5.5	Classifying Writing Number Mathematical Procedures Measurement Productive Team Skills Critical Thinking Decision Making Problem Solving	C4 C5 C6 C12 F8 F12 F13	Allocates Human Resources Acquires and Evaluates Information Organizes and Maintains Information Exercises Leadership Decision Making Reasoning Responsibility
EC002	Maintain receipts and disbursements records.	1.10 1.11	Classifying Writing	C6 F17	Organizes and Maintains Information Integrity/Honesty
EC003	Maintain inventory records.	1.16 2.7 2.10 2.13	Using Electronic Technology Number Measurement Data	C6 C19	Organizes and Maintains Information Applies Technology to a Task
EC004	Maintain computer records.	1.2 1.3 1.4 4.1 5.4 6.1	Reading Observing Listening Interpersonal Skills Decision Making Applying Multiple Perspectives	C5 C6	Acquires and Evaluates Information Organizes and Maintains Information
EC005	Identify possible actions that may lead to customer dissatisfaction.	1.2 1.3 1.4 2.7 4.1 4.4 4.6 5.1 6.2	Reading Observing Listening Number Interpersonal Skills Rights and Responsibilities Open Mind to Alternative Perspectives Critical Thinking Developing New Knowledge	C7 C11 F5 F6 F7 F9 F13 F15 F16	Interprets and Communicates Information Serves Clients/Customers Listening Speaking Creative Thinking Problem Solving Responsibility Social Self-Management
EC006	Identify the ways that the level of customer satisfaction may affect company success.	1.11 1.12 4.6 5.1 5.4	Writing Speaking Open Mind to Alternative Perspectives Critical Thinking Decision Making	C7 C11 F7	Interprets and Communicates Information Serves Clients/Customers Creative Thinking

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	Skill Standards		Kentucky Academic Expectations		SCANS
EC007	Explain the importance of a business reputation.	1.2 1.3 1.4 1.11 1.12 4.1 4.5	Reading Observing Listening Writing Speaking Interpersonal Skills Multicultural Sensitivity	C7 C11	Interprets and Communicates Information Serves Clients/Customers
EC008	Identify possible actions that may be used to correct customer dissatisfaction.	1.2 1.3 1.4 1.11 1.12 4.1 4.3 5.1 5.5	Reading Observing Listening Writing Speaking Interpersonal Skills Consistent, Responsive, Caring Behavior Critical Thinking Problem Solving	C5 C7 C11	Acquires and Evaluates Information Interprets and Communicates Information Serves Clients/Customers
EC009	Explain the effect of quality on profit.	1.2 1.3 1.4 1.11 1.12 2.18	Reading Observing Listening Writing Speaking Structure and Function of Economic System	C7 F2 F6	Interprets and Communicates Information Writing Speaking
EC010	Identify the effects of continuous quality improvement.	1.2 1.3 1.4 1.11 1.12 5.1	Reading Observing Listening Writing Speaking Critical Thinking	C7 C15 F2 F6 F9	Interprets and Communicates Information Understands Systems Writing Speaking Problem Solving
ED	**Demonstrate Effective Communication and Teamwork Skills.**				
ED001	Organize materials with a logical flow.	1.2 1.10 5.1	Reading Classifying Critical Thinking	C6 F12	Organizes and Maintains Information Reasoning
ED002	Interpret and clarify directions prepared by others.	1.2 1.3 1.4 5.1	Reading Observing Listening Critical Thinking	C7 F1 F5 F12 F15 F16	Interprets and Communicates Information Reading Listening Reasoning Social Self-Management

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	Skill Standards		Kentucky Academic Expectations		SCANS
ED003	Communicate with customers.	1.12 4.1 4.4	Speaking Interpersonal Skills Rights and Responsibilities	C7 C11 F5 F6 F9	Interprets and Communicates Information Serves Clients/Customers Listening Speaking Problem Solving
ED004	Write steps of an occupational process using sentences and statements as appropriate.	1.11	Writing	C7 F2 F12	Interprets and Communicates Information Writing Reasoning
ED005	Identify appropriate communication methods.	1.11 1.12 1.16	Writing Speaking Using Electronic Technology	C3 C6 C13 C16 C18 F1 F5 F9	Allocates Materials and Facility Resources Organizes and Maintains Information Negotiates to Arrive at a Decision Monitors and Corrects Performance Selects Technology Reading Listening Problem Solving
ED006	Identify components of group dynamics.	1.2 1.3 1.4 2.16 4.5	Reading Observing Listening Structure and Function of Social System Multicultural Sensitivity	C7 F2 F6	Interprets and Communicates Information Writing Speaking
EE	**Demonstrate Problem Solving Techniques.**				
EE001	Apply a system of problem solving.	1.1 1.10 5.1 5.2 5.3 5.4 5.5 6.1 6.3	Accessing Sources of Information Classifying Critical Thinking Creative Thinking Conceptualizing Decision Making Problem Solving Applying Multiple Perspectives Expanding Existing Knowledge	C7 C9 C12 C16 C20 F2 F6 F9	Interprets and Communicates Information Participates Exercises Leadership Monitors and Corrects Performance Maintains and Troubleshoots Technology Writing Speaking Problem Solving

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	Skill Standards		Kentucky Academic Expectations		SCANS
	ACADEMIC STANDARDS				
AA	**Utilize Effective Workplace Communication Skills**				
AA001	Read and process information and follow instructions.	1.1 1.2	Accessing Sources of Information Reading	F2 F6	Writing Speaking
AA002	Read material and describe concepts.	1.11 1.2 1.11 1.12 5.3	Writing Reading Writing Speaking Conceptualizing	C7 F1 F11	Interprets and Communicates Information Reading Knows How to Learn
AA003	Use correct terminology.	1.11 1.12	Writing Speaking	C7 F2	Interprets and Communicates Information Writing
AA004	Use correct spelling, grammar and punctuation.	1.11	Writing	C7 F2	Interprets and Communicates Information Writing
AA005	Write with accuracy, brevity, and clarity.	1.11	Writing	C7 F2	Interprets and Communicates Information Writing
AA006	Demonstrate knowledge of conflict resolution techniques.	2.16 2.26 2.29 2.33 4.1 4.3 4.4 4.5 4.6 5.1	Structure and Function of Social System Language Family Life and Parenting Community Health System Interpersonal Skills Consistent, Responsive, Caring Behavior Rights and Responsibilities Multicultural Sensitivity Open Mind to Alternative Perspectives Critical Thinking	C5 C9 C12 F2 F6 F8 F9 F12 F15 F16	Acquires and Evaluates Information Participates Exercises Leadership Writing Speaking Decision Making Problem Solving Reasoning Social Self-Management
AA007	Possess basic computer keyboarding skills.	1.16	Using Electronic Technology	C8	Uses Computers to Process Information
AA008	Demonstrate understanding of basic of interpersonal communication (listening, written, oral, etc.)	1.2 1.3 1.4 1.11 1.12 4.1	Reading Observing Listening Writing Speaking Interpersonal Skills	C5 C6 C7 F1 F2 F5 F6	Acquires and Evaluates Information Organizes and Maintains Information Interprets and Communicates Information Reading Writing Listening Speaking
AA009	Implement new process steps given oral instructions.	1.4 5.4	Listening Decision Making	C6 C7 C19 F5	Organize and Maintains Information Interprets and Communicates Information Applies Technology to a Task Listening

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	Skill Standards		Kentucky Academic Expectations		SCANS
AA010	Demonstrate the characteristics of a team player.	4.2 4.4 4.6	Productive Team Skills Rights and Responsibilities Open Mind to Alternative Perspectives	C9 F13 F16 F17	Participates Responsibility Self-Management Integrity/ Honesty
AA011	Contrast the roles of a team with the role of an individual.	4.2 4.4 4.6 5.4	Productive Team Skills Rights and Responsibilities Open Mind to Alternative Perspectives Decision Making	C7 F2 F6	Interprets and Communicates Information Writing Speaking
AA012	Perform techniques used as a team leader.	4.1 4.2 4.4 4.5 5.4 5.5	Interpersonal Skills Productive Team Skills Rights and responsibilities Multicultural Sensitivity Decision Making Problem Solving	C6 C7 C12 F5 F6 F13 F14 F16 F17	Organize and Maintains Information Interprets and Communicates Information Exercises Leadership Listening Speaking Responsibility Self-Esteem Self-Management Integrity/ Honesty
AA013	Demonstrate productive relationships within the work group.	4.2 4.6 5.4	Productive Team Skills Open Mind to Alternative Perspectives Decision Making	C9 F13 F16	Participates Responsibility Self-Management
AA014	Organize and deliver a persuasive oral presentation.	1.11 1.12 3.5	Writing Speaking Self Control and Self Discipline	C6 F2	Organizes and Maintains Information Writing
AA015	Demonstrate good speaking and presentation characteristics	1.12	Speaking	F6	Speaking
AA016	Demonstrate basic leadership skills	1.12 3.5 4.4 4.6	Speaking Self Control and Self Discipline Rights and Responsibilities Open Mind to Alternative Perspectives	C12 F13 F16	Exercises Leadership Responsibility Self-Management
AA017	Identify the organizational need for profit.	2.7 2.10 2.13 2.18	Number Measurement Data Structure and Function of Economic System	C5 F2 F6 F12	Acquires and Evaluates Information Writing Speaking Reasoning
AA018	Demonstrate use of an industry-accepted word processing software package.	1.16 1.12	Using Electronic Technology Speaking	C8 F6	Uses Computers to Process Information Speaking
AB	**Apply Math and Measurement Skills**				
AB001	Add, subtract, multiply, and divide four digit numbers with and without the use of a calculator.	1.16 2.7 2.8	Using Electronic Technology Number Mathematical Procedures	F3	Arithmetic
AB002	Apply basic math functions to solve problems.	2.7 2.8	Number Mathematical Procedures	F4	Mathematics

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	Skill Standards		Kentucky Academic Expectations		SCANS
AB003	Convert between US and metric measurement systems.	2.7 2.8 2.10 2.11	Number Mathematical Procedures Measurement Change	F4 F12	Mathematics Reasoning
AB004	Convert fractional measurement to decimal measurement.	2.7 2.8 2.10 2.11	Number Mathematical Procedures Measurement Change	F4 F12	Mathematics Reasoning
AB005	Compute within measurement systems.	1.16 2.7 2.8 2.10	Using Electronic Technology Number Mathematical Procedures Measurement	F4 F12	Mathematics Reasoning
AB006	Document results of measurement activities and calculations	1.5 1.6 1.7 1.8 1.9 1.11	Quantifying Computing Visualizing Measuring Mathematical Reasoning Writing	C7 F4 F12	Interprets and Communicates Information Mathematics Reasoning
AB007	Calculate with percents, rate, ratio, and proportion with the use of a calculator	1.16 2,7 2.8	Using Electronic Technology Number Mathematical Procedures	F4 F12	Mathematics Reasoning
AB008	Make reasonable estimates	1.16 2.7 2.8	Using Electronic Technology Number Mathematical Procedures	F3 F12	Arithmetic Reasoning
AB009	Compute calculated measurements.	1.5 1.6 1.7 1.8 1.9 1.16 2.10	Quantifying Computing Visualizing Measuring Mathematical Reasoning Using Electronic Technology Measurement	F3 F4 F12	Arithmetic Mathematics Reasoning
AC	**Apply Basic Science Concepts and Skills**				
AC001	Understand scientific plant classification	1.1 1.2	Accessing Sources of Information Reading	C5 C15 F11 F12	Acquires and Evaluates Information Understands Systems Knows How to Learn Reasoning
AC002	Compare the anatomical parts and distinguishing characteristics of plants	1.1 1.2 2.4	Accessing Sources of Information Reading Models and Scale	C7 C15 F11 F12	Interprets and Communicates Information Understands Systems Knows How to Learn Reasoning
AC003	Understand the reproductive processes of plants	1.1	Accessing Sources of Information	C5	Acquires and Evaluates Information

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	Skill Standards		Kentucky Academic Expectations		SCANS
		2.1	Nature of Science Activity	C15	Understands Systems
		2.3	Systems and Interactions	F1	Reading
		2.4	Models and Scale	F12	Reasoning
ACOO4	Investigate sexual and asexual reproduction of plants including tissue culture	1.1	Accessing Sources of Information	C5	Acquires and Evaluates Information Understands
		2.1	Nature of Science Activity	C15	Systems
		2.3	Systems and Interactions	F1	Reading
		2.6	Change Over Time	F12	Reasoning
AC005	Analyze the process of plant growth and development	1.1	Accessing Sources of Information	C5	Acquires and Evaluates Information
		2.1	Nature of Science Activity	C15	Understands Systems
		2.3	Systems and Interactions	F1	Reading
		2.6	Change Over Time	F12	Reasoning
AC006	Be aware of biotechnology and its uses in horticulture production	1.1	Accessing Sources of Information	C5	Acquires and Evaluates Information
		2.1	Nature of Science Activity	C15	Understands Systems
		2.3	Systems and Interactions	F1	Reading
				F12	Reasoning
AC007	Explain the use of applied genetics in plants	1.1	Accessing Sources of Information	C7	Interprets and Communicates Information
		1.11	Writing	C15	Understands Systems
		1.12	Speaking	F1	Reading
		2.1	Nature of Science Activity	F11	Know How to Learn
		2.2	Patterns		
		2.3	Systems and Interactions		
		2.5	Constancy		
		2.6	Change Over Time		